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GB 1200430

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US 4123873A

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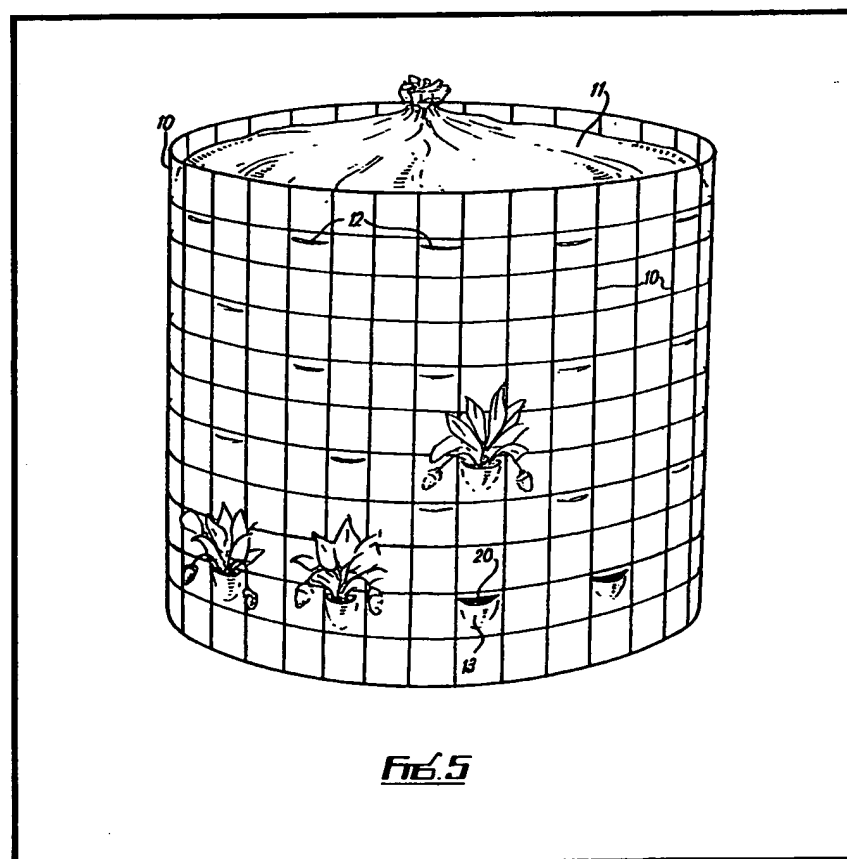
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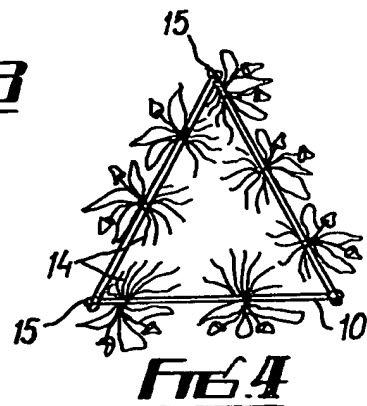
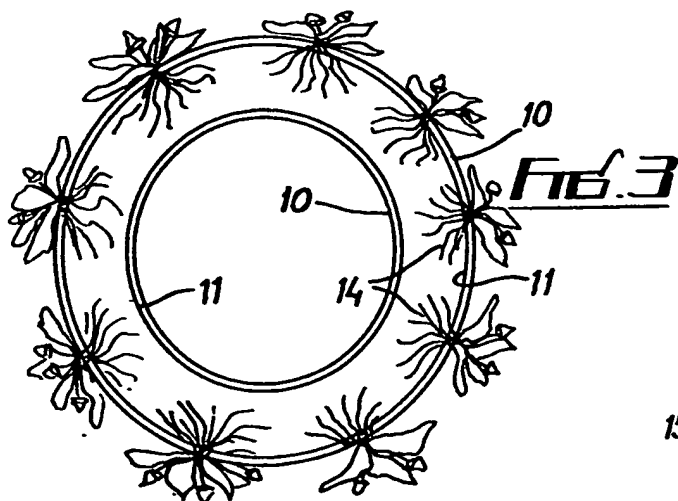
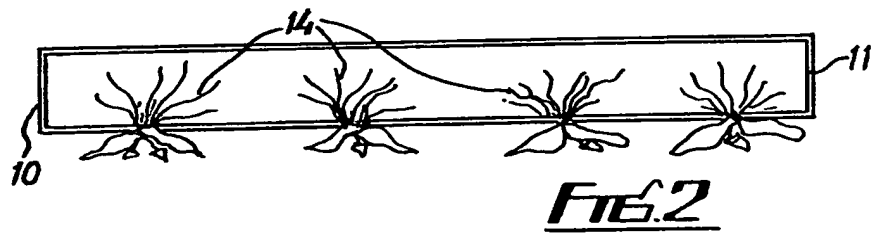
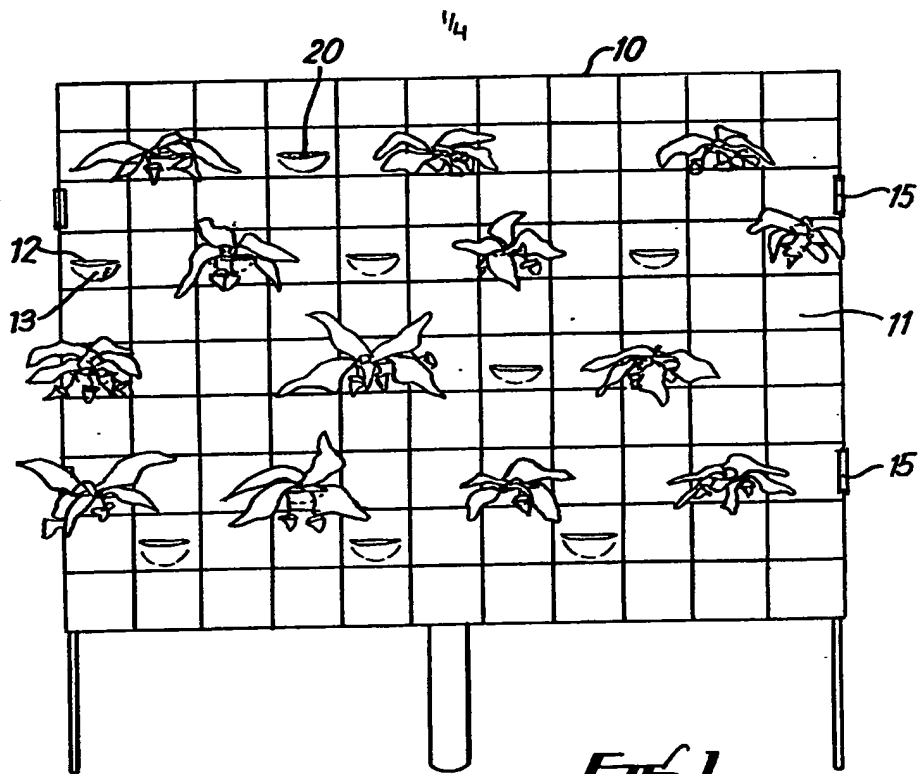
(54) Containers for growing plants

(57) A horticultural system comprising a container having an apertured side wall, a liner within the container and growing medium within the liner, wherein plants or the like have their roots embedded in the growing medium and project through apertures in the liner and the apertures in the container side walls.



The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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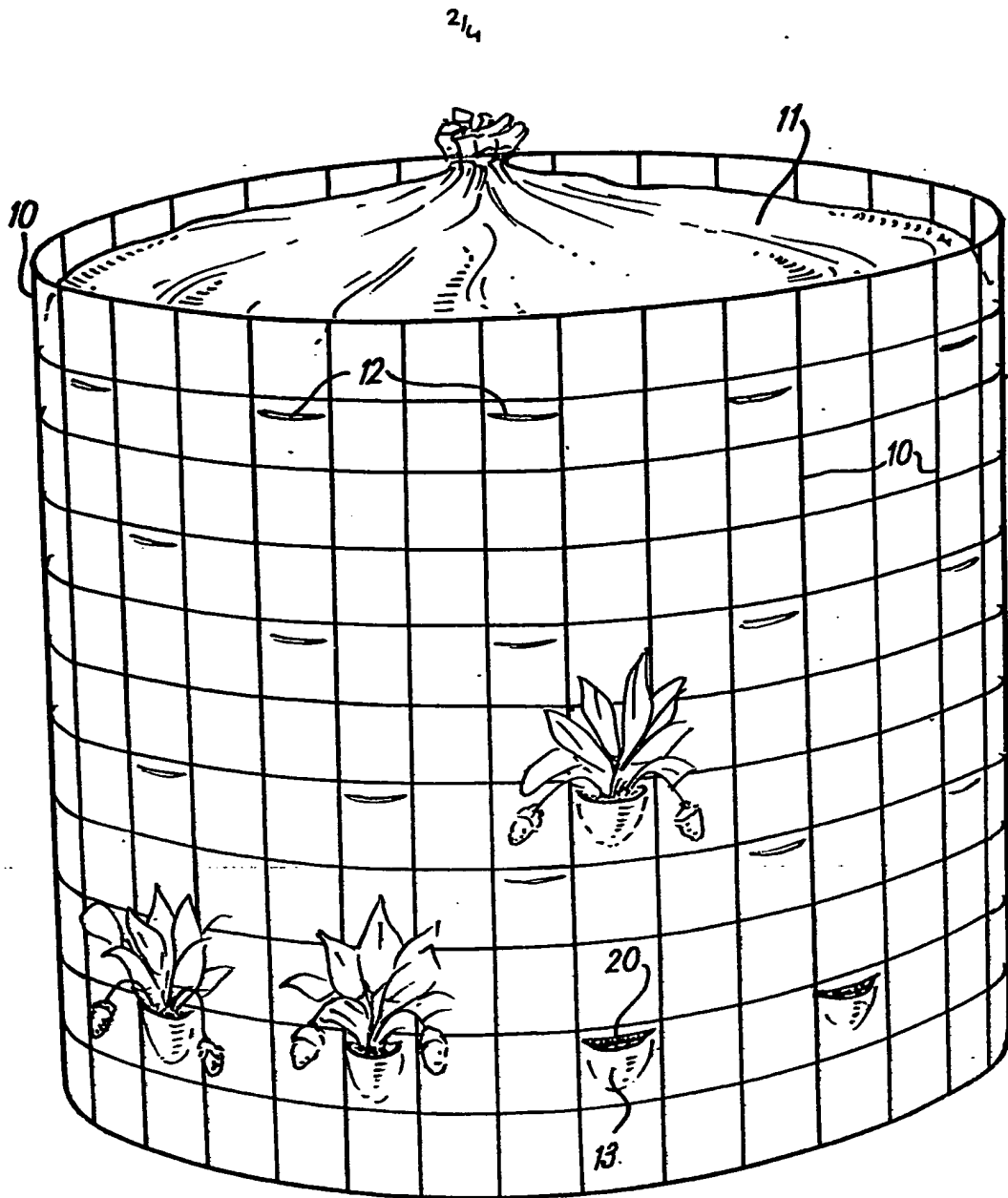


FIG. 5

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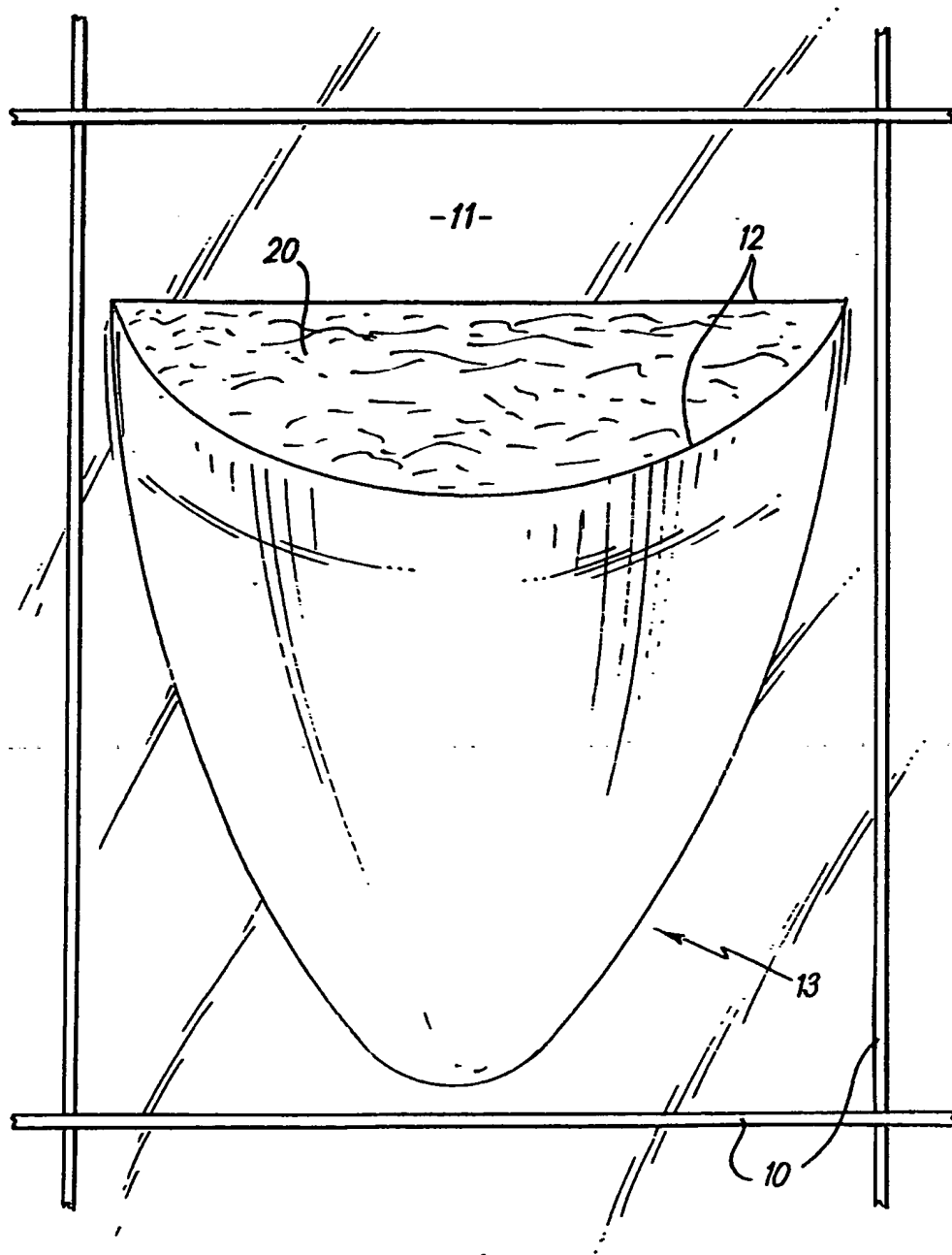
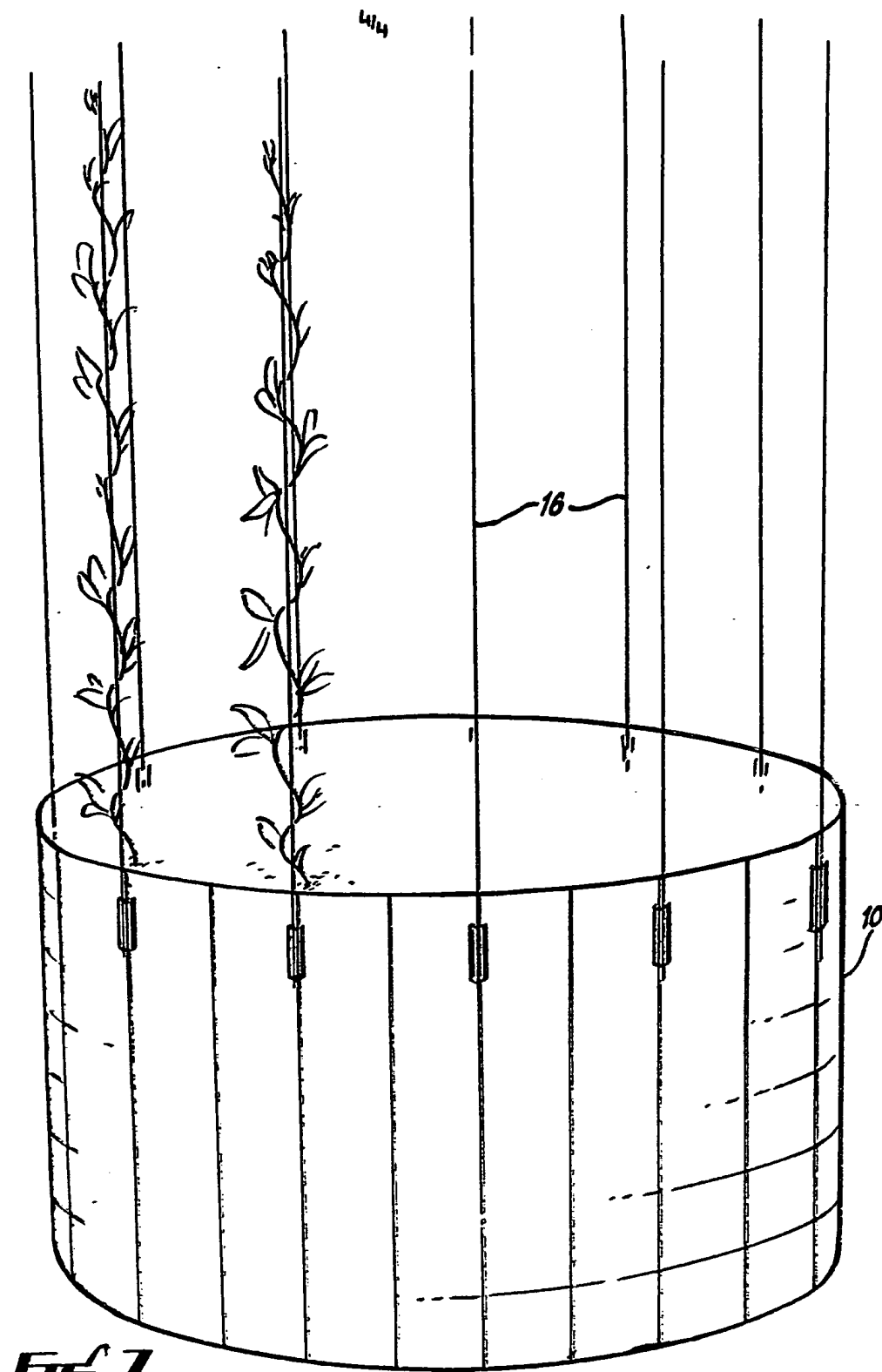


FIG. 6

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## SPECIFICATION

### Horticultural system

- 5 This invention relates to a horticultural system.

It has recently become more and more important and desirable to obtain a maximum crop of fruit or other plants from a small amount of growing medium, both in the commercial environment where output is thus optimised and in the domestic environment where edible crops reduce expenditure on food. In the domestic environment especially it is also important to provide aesthetically pleasing and compact containers for growing plants.

- According to the present invention there is provided a horticultural system comprising a container having an apertured side wall, a liner within the container and growing medium within the liner, wherein plants or the like have their roots embedded in the growing medium and project through apertures in the liner and the apertures in the container side walls.

- Further according to the invention there is provided a kit of parts for forming a horticultural system comprising a container having an apertured side wall, and a liner adapted to fit within the container and having apertures in its wall arranged so that in use the apertures in the liner communicate with the apertures in the container side wall.

- The container may be of a variety of shapes, for example cylindrical, but it has been found that the amount of growing medium per plant can be kept very small by providing the container with a toroidal, rectangular or triangular cross-sectional shape. A triangular cross-section has been found to be of especial benefit.

- It is particularly effective for the average depth of the container inwardly of its side walls to be from one to two times the depth of the plant roots.

- The container can have legs to hold it clear of the ground whereby the plants growing through its side walls will not be affected by disease and attack by pests from ground soil contact.

- The container may be made of mesh material, for example plastics coated wire mesh. The liner is preferably of plastics sheet material, for example polyethylene sheet; preferably also, the liner is in the form of a bag within the container.

- The container preferably is constructed of interconnected sections which when not in use can be stacked one on another. In this way the sections can be easily stored and transported, and the system can be supplied as a very compact package.

- Embodiments of the invention will now be described by way of example with reference to

the accompanying drawings, in which:

*Figure 1* is a front view of a horticultural system of this invention;

- Figures 2, 3 and 4* are cross-sectional plan views of horticultural systems having a rectangular, toroidal and triangular container respectively;

*Figure 5* is a perspective view of a further embodiment of the invention;

- Figure 6* is a front view of a detail of the system of Fig. 1 or Fig. 5; and

*Figure 7* is a perspective view of a modification of the embodiment of Fig. 5.

- The horticultural system of these embodiments comprises a frame 10 made of wire mesh coated with plastics material.

- A polythene liner 11 in the form of a bag is supported by the frame 10 and contains a suitable growing medium 20 which may be for example peat, volcanic rock or the like.

- The liner 11 is slit at 12 to form a "pocket" 13 containing the growing medium 20 and protruding through the mesh of the frame 10 (see in particular Fig. 6).

- The above described system of these embodiments of the invention is designed to grow such crops as strawberries, tomatoes, beans, corn and cucumbers, etc., in conditions of restricted space, at the same time having the flexibility for the growing plants to be moved from one location to another, for example on a patio or balcony.

- In Fig. 2 the frame 10 is rectangular in cross-section and is about 6 inches from front to back, so that the roots 14 of the plants extend more than halfway across the frame. The growing medium is thus largely occupied by the roots 14 and there is very little excess medium.

- In Fig. 3 the general arrangement is similar but the frame 10 is toroidal in cross-section. The plants can if desired extend from the inner face of the frame 10, but in so doing they are generally in shade; the illustrated planting arrangement whereby the plants grow through the mesh of the frame 10 at its outer face is thus found to be more effective.

- In Figs. 1 and 4 the frames 10 are triangular in cross-section, the side walls being releasably connected to one another through plastic clips 15. Legs 16 extend downwardly from the lower edge of the frame 10 (Fig. 1), the legs 16 also being formed from plastics-coated wire. By virtue of the interconnection of the side walls the frame 10 can be folded flat for compact storage and easy transportation.

- Fig. 5 shows a system of the invention which is free-standing and is constructed from two semi-cylindrical wire mesh portions interconnected at their straight edges by plastics retaining clips (not shown).

The system of these embodiments is used as follows.

- The frame 10 of wire mesh is constructed,

in the case of Fig. 1 by connecting the clips 15 at the side wall edges. Into the structure so formed (which in the case of Figs. 2 to 7 may or may not have a wire base) the polythene bag 11 is inserted and filled with a growing medium. In the case where strawberries are to be grown slits are then cut in the polythene through the mesh squares at the outer face of the frame 10 and the roots of the plants inserted into the growing medium. Watering and feeding may be carried out through individual holes or through the top of the polythene bag which can be gathered together for closure.

Using the above technique, there has been successfully grown 30 strawberry plants in an area of about 3 sq. ft. Space saving is not the only advantage. The fruit does not come in contact with the ground and therefore no rotting occurs and the incidence of soil-borne problems (leather jackets, slugs, etc.) is drastically reduced.

Other plants, for example dwarf Canadian beans, can be grown in the same way as strawberries, whereas with tomatoes, runner beans, etc., the plants are introduced into the top of the polythene bag 11 and extra wire supports 16 are clipped to the frame 10 to support the vertical growth, as is illustrated in Fig. 7. A larger diameter, lower height version of this module can be used to grow potatoes by placing a layer of growing medium in the base of the bag 11, planting the potatoes and progressively covering the growing shoots with extra layers of growing medium. Tubers are formed progressively from the bottom to the very top of the cylinder. (Approximately 15 lbs per cubic foot).

The growing medium may be peat. An alternative to peat is a proprietary material called Perlite, which is a volcanic rock of extremely low density but with the ability to hold 15 times its own weight in water. In addition, it is an extremely phitophilic material and root systems develop well in it. This medium can be used by itself, or mixed with varying percentages of peat. Slow release fertiliser particles can be included in the mixture thus eliminating feeding problems. Different growing media may be provided for different crops.

Modifications and improvements can be made without departing from the scope of the invention.

#### CLAIMS

1. A horticultural system comprising a container having an apertured side wall, a liner within the container and growing medium within the liner, wherein plants or the like have their roots embedded in the growing medium and project through apertures in the liner and the apertures in the container side walls.

2. A system according to claim 1, wherein

the container has a cross-sectional shape selected from triangular, toroidal, rectangular and cylindrical.

3. A system according to claim 1 or 2, wherein the average depth of the container inwardly of the side wall is from one to two times the depth of the plant roots.

4. A system according to claim 1, 2 or 3, wherein the container is of mesh construction.

5. A system according to claim 4, wherein the container is of wire mesh.

6. A system according to any one of the preceding claims, wherein the liner is of plastics sheet material.

7. A system according to claim 6, wherein the liner is of polyethylene sheet.

8. A system according to any one of the preceding claims, wherein the liner forms a bag within the container.

9. A system according to any one of the preceding claims, wherein the container has legs for supporting it clear of the ground.

10. A system according to any one of the preceding claims, wherein the container is constructed from interconnected sections which when not in use are stackable one on another.

11. A system according to any one of the preceding claims, wherein the apertures in the liner are in the form of pockets whereby the lower edge of the aperture extends outwardly beyond the upper edge.

12. A horticultural system substantially as hereinbefore described with reference to and as shown in any one of Figs. 1 to 7 of the accompanying drawings.

13. A kit of parts for forming a horticultural system according to any one of the preceding claims, comprising a container having an apertured side wall, and a liner adapted to fit within the container and having apertures in its wall arranged so that in use the apertures in the liner communicate with the apertures in the container side wall.

14. A kit of parts for forming a horticultural system, substantially as hereinbefore described with reference to and as shown in any one of Figs. 1 to 7 of the accompanying drawings.

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